**REMARKS:**

Claims 1-37 are pending in the present application.

In the initial Office Action, the Examiner initially rejected all pending claims of the present application pursuant to 35 U.S.C. § 103(a) as being obvious in view of a combination of one or more of the following prior art references: U.S. Patent No. 6,490,459 issued to Sugaya et al., U.S. Patent No. 6,535,498 issued to Larsson et al., U.S. Patent No. 6,218,958 issued to Eichstaedt et al., U.S. Patent No. 6,717,529 issued to Belvin et al., U.S. Patent Publication No. 2002/0065058 to Gatherer et al., U.S. Patent No. 6,339,745 issued to Novik, and U.S. Patent Publication No. 2003/0190912 to Jampolsky et al.

**BRIEF SUMMARY OF THE INVENTION**

Before discussing the specific rejections and claims of the present application, Applicants believe it to be beneficial to review the essential features and advantages of the present invention in order to place the discussion of the rejections and claims in proper context.

The present invention is a method and system for transmitting, receiving, and collecting information related to a plurality of working components, such as street lamps. A preferred implementation of the method and system of the present invention is a communications network having a three-tier structure. The first tier of the communications network includes a plurality of transceiver modules, each of which is secured and operably connected to a working component, e.g., a street lamp. These transceiver modules transmit and receive radio communications or "messages" representative of the status of the working component from one another in a controlled manner, with each message ultimately being directed to an area control module. The

second tier of the communications network includes a network support server at a central location, with the area control module transferring collected messages from the transceiver modules to the network support server. The network support server analyzes the information and data contained in such messages. Finally, the third tier of the communications network includes one or more control and display units, such as a personal computer with an associated Internet browser. Information and data analyzed and compiled by the network support server is transferred to the control and display units through the Internet or similar computer network for review by end users.

Furthermore, the network support server allows for control of the working components by initiating transmission of radio communications containing instructions or programming code to one or more particular transceiver modules based on a predetermined schedule, or upon occurrence of a specific event, such as a command initiated by operations and/or maintenance personnel through the control and display units.

Accordingly, a communications network of this nature allows for efficient and effective monitoring and controlling of working components (e.g., street lamps) through short-distance radio communications at low power levels. Specifically, each of the transceiver modules is within range of one or more other transceiver modules. Thus, a particular transceiver module can communicate with other transceiver modules within its range, the ultimate goal being to propagate messages from transceiver module to transceiver module until they can be received at an area control module or "network access point." In this regard, each and every transceiver module is aware of all its immediate neighbors and the most efficient or designated path to the area control module; thus, if a transceiver module receives a message from a neighbor, it is

preprogrammed to make a determination of whether it lies in the designated path and thus whether or not to repeat/re-transmit the message.

Finally, each transceiver module not only serves as a communications node, but it also includes one or more sensors for sensing various parameters of the working component to which it is attached. When the method and system of the present invention is implemented to monitor street lamps or similar light fixtures, a preferred sensor might measure current flow or voltage, or count the total number of hours that the bulb was burning, or count the number of bulb strikes. Each transceiver module also includes an actuation component for operational control of the working component. For example, in the control of street lamps or similar light fixtures, the actuation component could be a simple switch used to turn a lamp on or off.

**OBVIOUSNESS STANDARD**

Referring now to the initial rejections of all pending claims of the present application as being obvious in view of various combinations of the cited prior art references, it is important to recognize that "[w]hen an obviousness determination relies on the combination of two or more references, there must be some suggestion or motivation to combine the references." WMS Gaming Inc. v. International Game Technology, 51 USPQ2d 1385, 1397 (Fed. Cir. 1999). See also In re Rouffet, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1456 (Fed. Cir. 1998); In re Oetiker, 24 USPQ2d 1443, 1446 (Fed. Cir. 1992); Diversitech Corp. v. Century Steps, Inc., 850 F.2d 675, 678-79, 7 USPQ2d 1315, 1318 (Fed. Cir. 1988); In re Geiger, 815 F.2d 686, 687, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987); and Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 1147, 227 USPQ 543, 551 (Fed. Cir. 1985).

As reiterated and emphasized by the Federal Circuit, such a requirement is a powerful protection against impermissible hindsight reconstruction:

> Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. [citations omitted]. Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight...[citations omitted].

In re Dembiczak, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). See also C.R. Bard, Inc. v. M3 Sys., Inc., 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998) (describing "teaching or suggestion or motivation [to combine]" as an "essential evidentiary component of an obviousness holding"); and In re Rouffet, 149 F.3d at 1359, 47 USPQ2d at 1459 ("[T]he Board must explain the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious.").

**BRIEF SUMMARIES OF CITED PRIOR ART REFERENCES**

U.S. Patent No. 6,490,459 (Sugaya et al.) was the primary reference used to reject the claims of the present application. Sugaya describes and claims a "Communication Control Method and Transmission Apparatus." This apparatus is designed to operate "in a relatively small range such as home or office, when a local area network is constructed among a plurality of apparatuses such as various video apparatuses, personal computer machine, or its periphery...." See column 1; lines 15-18. Perhaps more pertinent to the present discussion, Sugaya discusses the problem of a "hidden terminal station." As best illustrated in Figure 2, the central control station 10 can transmit to the out-of-range communication station 7 through a

branch station 3 or 6. However, "[s]uch judgment of the hidden terminal station or selection processing for the branch station are performed by the control unit 25 of the transmission apparatus constituting the central control 10." See column 5; lines 41-45. Accordingly, as the Examiner recognized, Sugaya does not teach or suggest that the receiving transceiver modules make a determination of whether to re-transmit a received message. Quite to the contrary, all decision-making is a function of the central control station 10.

U.S. Patent No. 6,535,498 (Larsson et al.) also figured prominently in the initial rejections of the claims of the pending application. Larsson describes and claims a route updating protocol for ad-hoc networks. In citing this reference as part of the obviousness rejection of the claims of the present application, the Examiner pointed to a paragraph in the background of the Larsson reference which describes reactive routing protocols in general:

> To establish a route from a source node to a destination node using reactive protocols, a request message is transmitted from the source node to the destination node. Initially, the source broadcasts the request message to all neighboring nodes, i.e., all nodes adjacent to the source node. If a neighbor node receiving the request message is neither the destination node nor has a valid route to the destination node, the neighbor node rebroadcasts the request message to all of its neighbor nodes, excluding the node from which it received the request message.

See column 2; lines 46-55.

However, it is important to recognize that such an updating protocol is separate and distinct from the transmission of the data packets themselves. As described in the above excerpt from the Larsson reference, it is a "request message" that is transmitted to identify the optimal route. Subsequently, "the destination node generates a unicast message and transmits the reply message back to the source node." See column 2; lines 64-66. Then, "the source node uses the first reply message received to begin transmitting data packets to the destination node" along the

designated route. See column 2; line 67 – column 3, line 2. Larsson then describes an improved updating protocol based on such a reactive routing protocol in which a node "periodically broadbast[s] an [sic] request for updated route message to find a new and better route between the source node and the destination node."

Furthermore, as stated in the above excerpt from Larsson, "[i]f a neighbor node receiving the request message is neither the destination node nor has a valid route to the destination node, the neighbor node rebroadcasts the request message to all of its neighbor nodes...." In short, re-transmission occurs when the receiving node is not on the designated path, an important distinction that will be further discussed in the analysis that follows.

Finally, Larsson describes a protocol that is specifically designed for Bluetooth or similar short-distance networks. In a Bluetooth network, there is a single master which may have connections with up to seven slaves, forming a "piconet." All communications are strictly bi-directional between the master and a selected slave. See column 1; lines 54-57. Therefore, a particular "slave" transceiver can not communicate with all neighboring transceivers within its range, but only with a master within its range.

U.S. Patent No. 6,218,958 (Eichstaedt.et al.) describes a wearable computing device, which includes a notification component for generating a discrete tactile signal against an individual's skin upon receipt of a telephone call, email message, page, etc. Accordingly, Eichstaedt contemplates a single notification (i.e., working) component that is in communication with multiple devices and reacts to signals from those devices, as compared to the system of the present invention where a central location monitors and controls the operation of a plurality of working components, each with its own actuation component. In other words, in the Eichstaedt

reference, there is no monitoring and actuation of multiple working components from a central location.

U.S. Patent No. 6,717,529 (Belvin et al.) describes and claims a particular radio telemetry system and method in which there is a transmission from the remote transmit unit each time the sensor status signals transitions between first and second states. Belvin includes no discussion of or suggestion for implementing this method and system to monitor the operational status of a plurality of working components. Rather, Belvin mentions only that the described system and method could sense weather-related data, for example, "temperature, pressure, humidity, wind direction, wind velocity, and a level of collected rain water." See column 2; line 32-34 and column 3; lines 56-57. In short, Belvin neither teaches nor contemplates sensing of the operational parameters of a working component.

U.S. Patent Publication No. 2002/0065058 to Gatherer et al. describes and claims a "concentrator" for coupling local wireless networks to a wired network. Specifically, a particular technique using antenna array processing and beamforming techniques is used in order to reduce communication interference between networks. Although Gatherer does correctly note that Bluetooth transceivers commonly operate at maximum power levels no more than 100 mW, in a Bluetooth network, there is a single master which may have connections with up to seven slaves, forming a "piconet." All communications are strictly bi-directional between the master and a selected slave. See, generally, paragraph [0004]. However, Gatherer neither teaches nor suggests how to use such low-powered transmissions in a large-scale network for monitoring and controlling a plurality of working components, a network in which a particular transceiver module can communicate with other transceiver modules within its range. Quite to the contrary,

Gatherer only discusses bi-directional communications in a master-slave relationship.

U.S. Patent No. 6,339,745 issued to Novik describes and claims a method and system for fleet tracking. The Examiner correctly recognizes that Novik generally describes the communication of information about and from multiple vehicles to a central computer system. However, the described method and system is specifically designed for vehicle tracking and all communications are between a central location (i.e., a "home base") and the individual vehicles. There are no communications between vehicles.

Finally, U.S. Patent Publication No. 2003/0190912 to Jampolsky et al. describes and claims a wireless communications network that collects and reports data relating to the use of wireless telephones. The Examiner correctly recognizes that Jampolsky generally describes a relationship between one or more control and display units and a network server. However, the described method and system is specifically designed for collecting data related to wireless telephones, which are by their very nature are part of an existing telecommunications network in which each telephone communicates through a mobile switching center to a wired network.

ANALYSIS

As mentioned above, a "teaching or suggestion or motivation" to combine prior art references is an "essential evidentiary component of an obviousness holding." C.R. Bard, Inc., 157 F.3d at 1352, 48 USPQ2d at 1232. "Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability – the essence of hindsight. In re Dembiczak, 50 USPQ2d at 1617.

**CLAIMS 1-15**

Referring first to the combination of U.S. Patent No. 6,490,459 (Sugaya et al.) and U.S. Patent No. 6,535,498 (Larsson et al.), the primary combination of references underlying the initial rejection of all pending claims of the present application, Applicants respectfully submit that the combination is improper. As illustrated in Figure 2, Sugaya teaches a communications protocol in which the central control station 10 can transmit to the out-of-range communication station 7 through a branch station 3 or 6, an action that is dictated and initiated by the control station 10. However, Sugaya does not teach or suggest that the neighboring/receiving transceiver modules make a determination of whether to re-transmit a received message. Indeed, there is no need for such communications because Sugaya is concerned only with short-distance transmissions, such as between computer peripherals "at home or in a relatively small station of the like." See column 3; lines 38-39. In other words, there is no need for the repeating and retransmission of messages, so Sugaya can not be said to provide any suggestion or motivation for seeking a teaching related to route updating protocol.

Larsson describes and claims a route updating protocol for ad-hoc networks. As discussed above, however, the updating protocol is separate and distinct from the transmission of the data packets themselves. Specifically, a "request message" is transmitted to identify the optimal route. Only after the source node receives a reply message from the destination node is a path established for subsequent transmission of data packets. In short, Larsson teaches an updating protocol that is separate and apart from the actual data transmission. There is simply no teaching or suggestion for incorporating this updating protocol into a data transmission

methodology, such as that described by Sugaya.

Accordingly, Applicants respectfully submit that the combination of the Sugaya and Larsson references is improper since a claimed invention can "not be obvious without a demonstration of the existence of a motivation to combine those references at the time of the invention." National Steel Car Ltd. v. Canadian Pacific Railway Ltd., 69 USPQ2d 1641, 1654-55 (Fed. Cir. 2004), citing Ecolochem, Inc. v. S. Cal. Edison Co., 227 F.3d 1361, 1371, 56 USPQ2d 1065, (Fed. Cir. 2000). Indeed, the only teaching or suggestion that supports the combination of these references is found in the teachings of the present application. In short, this is a classic case of hindsight reconstruction in which the present patent application has been used as "a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit." Orthopedic Equip. Co. v. United States, 702 F.2d 1005, 1012, 217 USPQ 193, 199 (Fed. Cir. 1983).

Furthermore, regardless of the propriety of combining the references, "the prior art references (or references when combined) must teach or suggest all of the claims limitations." MPEP § 706.02(j) (emphasis added). However, Sugaya and Larsson, in combination, still fail to teach all of the limitations of the claims against which they were cited. For example, claim 1 of the present application recites as follows:

> 1. A method for communicating information related to a plurality of working components from each such working component to a central location, comprising the steps of:
>
> attaching and operably connecting a transceiver module to each working component, said transceiver module including at least a microcontroller and a radio transceiver; and
>
> positioning an area control module in the vicinity of the plurality of working components, said area control module including at least a microprocessor and a radio transceiver, and said area control module being in communication with said central location;

wherein, upon occurrence of a predetermined event, the microcontroller associated with one of said transceiver modules initiating transmission of a message through the radio transceiver, said message containing the identification of and the status of the working component;

the message being received by the radio transceivers associated with one or more neighboring transceiver modules;

each of said receiving transceiver modules making a decision as to whether to re-transmit said message based on a determination of whether the transceiver module is on a designated path between the transceiver module from which the message originated and the area control module;

re-transmission of the message continuing along said designated path until the message is received at the area control module; and

said area control module communicating said message to the central location.

As the Examiner recognized and as mentioned above, Sugaya does not teach or suggest that the neighboring/receiving transceiver modules make a determination of whether to re-transmit a received message with "re-transmission of the message continuing along said designated path until the message is received at the area control module." However, Larsson does not provide this missing teaching. As noted above, Larsson mentions that "[i]f a neighbor node receiving the request message is neither the destination node nor has a valid route to the destination node, the neighbor node rebroadcasts the request message to all of its neighbor nodes...." In short, in Larsson, re-transmission occurs when the receiving node is not on the designated path. This is readily contrasted from the language of claim 1 which clearly recites that re-transmission of the message continues only along the designated path.

Furthermore, although the "request message" taught by Larsson may include identification of the source node/transceiver, the message does not include any status information related to a working component. In other words, the "request message" that is re-transmitted in Larsson is not equivalent to the message defined in claim 1 that contains "the identification of

and status of the working component."

Finally, Larsson is specifically designed for a Bluetooth network in which there is a single master which may have connections with up to seven slaves, with all communications being strictly bi-directional between the master and a selected slave. Therefore, each transceiver does not communicate with each of its neighboring transceiver as contemplated by claim 1.

For these reasons, Sugaya and Larsson, in combination, can not be said to teach all of the claim limitations of claim 1. Thus, Applicants respectfully submit that, regardless of the propriety of combining the Sugaya and Larsson references, the initial rejection of claim 1 is still improper and should be withdrawn.

Claims 2-15 depend from claim 1 and are each believed to be allowable in view of the argument presented above with respect to claim 1. Furthermore, some of these dependent claims include additional limitations that distinguish them over the cited prior art references irrespective of the disposition of claim 1, as set forth below.

Claim 4 depends from claim 3 (and indirectly, claim 1) and includes the limitation that each transceiver module include "at least one actuation component for manipulating the operation of the working component." For example, when the working component is a street lamp, the actuation component might be a switch for turning the street lamp on or off. In rejecting this claim as being obvious, the Examiner cited not only the Sugaya and Larsson references, but also U.S. Patent No. 6,218,958 (Eichstaedt et al.). However, there does not appear to be any suggestion or motivation for combining the teachings of Eichstaedt with that of Sugaya and Larsson. As described above, Eichstaedt contemplates a mobile computing device with a notification component that is in communication with multiple devices and reacts to

signals from those devices. Eichstaedt provides no teaching or suggestion for developing a system and method for controlling the operation of a plurality of working components, each with its own actuation component. Furthermore, neither Sugaya or Larsson provide any teaching or suggestion for controlling the operation of a plurality of working components. Absent a suggestion or motivation for combining the teachings of these references, Applicants respectfully submit that the combination is improper and that the initial rejection of claim 4 should be withdrawn.

Claim 5 depends from claim 1 and includes the limitation that each transceiver module includes one or more sensors for sensing various operational parameters of the status of each working component and communicating that information to a microcontroller for subsequent transmission. In rejecting this claim as being obvious, the Examiner relied on a combination of the Sugaya, Larsson, and Eichstaedt references, along with U.S. Patent No. 6,717,529 (Belvin et al.). As mentioned above, Eichstaedt contemplates a single wearable computing device with a notification component that is in communication with multiple devices and reacts to signals from those devices. Eichstaedt provides no teaching or suggestion for developing a system and method for controlling the operation of a plurality of working components. Furthermore, Belvin includes no discussion of or suggestion for implementing his radio telemetry system to monitor the operational status of a plurality of working components. Therefore, absent a suggestion or motivation for combining the teachings of these references, Applicants respectfully submit that the combination is improper and that the initial rejection of claim 5 should be withdrawn.

Furthermore, regardless of the propriety of combining these teachings, there is one key limitation that is neither taught nor suggested by any of the cited references. Claim 5 specifically

requires "subsequent transmission" of the status information collected by the sensors. In Eichstaedt, the sensor is part of the wearable computing device that receives communications from mobile telephones, pagers, etc. All communications are uni-directional from the mobile telephones, pagers, etc. to the wearable computing device, and therefore, there is no transmission of the status information collected by the sensors. Accordingly, the combination of the Sugaya, Larsson, Eichstaedt, and Belvin references still fails to teach all of the limitations of claim 5, and the rejection should therefore be withdrawn on these grounds as well.

Claim 12 depends from claim 10 (and indirectly, claim 1) and includes the limitation that information and data associated with the maintenance and operation of the transceiver module is stored in an associated memory. As the Examiner states in the initial Office Action, "Sugaya as modified by Larsson teaches that data required for communication control of the wireless transceiver is temporality [sic] stored in the internal memory." However, this type of information and data related to "communication control" is readily distinguished from the "information and data associated with the maintenance and operation of the working component." In short, Sugaya teaches only the temporary storage of information and data related to the actual communications protocol, while the method recited in claim 12 contemplates storage of information and data related to the working component itself, for example, the location of the working component, a secure owner access code, the date that the working component was installed, etc. Accordingly, the combination of the Sugaya and Larsson references fails to teach the invention as recited in claim 12, and the rejection should therefore be withdrawn.

Claim 14 depends from claim 1 and includes the limitation that the radio transceivers

associated with each transceiver module operate at power levels of no more than 500 mW. In rejecting this claim as being obvious, the Examiner cited not only the Sugaya and Larsson references, but also U.S. Patent Publication No. 2002/0065058 (Gatherer et al.). As discussed above, however, although Gatherer does correctly note that Bluetooth transceivers commonly operate at maximum power levels no more than 100 mW, in a Bluetooth network, there is a single master which may have connections with up to seven slaves, forming a "piconet." All communications are strictly bi-directional between the master and a selected slave. See, generally, paragraph [0004]. In such a network, there is no need for the repeating and retransmission of messages, nor is there any need for an updating protocol, because the designated paths between the slaves and the master for data transmission are defined. Therefore, there is no suggestion or motivation for combining the teachings of Gatherer with those of Sugaya and/or Larsson. Therefore, Applicants respectfully submit that the combination is improper and that the initial rejection of claim 14 should also be withdrawn.

**CLAIMS 16-29**

Claim 16 is a method claim that recites as follows:

> 16. (original) A system for communicating information related to a plurality of working components, comprising:
>
> a plurality of transceiver modules, each such transceiver module being secured and operably connected to working component, each such transceiver module including at least a microcontroller and a radio transceiver; and
>
> at least one area control module positioned in the vicinity of the plurality of transceiver modules, said area control module including at least a microprocessor and a radio transceiver;
>
> a network support server in communication with said area control module; and
>
> one or more display and control units in communication with said

network support server;

wherein, upon occurrence of a predetermined event,

the microcontroller associated with one of said transceiver modules initiating transmission of a message through the radio transceiver, said message containing the identification of and the status of the working component;

the message being received by the radio transceivers associated with one or more neighboring transceiver modules;

each of said receiving transceiver modules making a decision as to whether to re-transmit said message based on a determination of whether the transceiver module is on a designated path between the transceiver module from which the message originated and the area control module;

re-transmission of the message continuing along said designated path until the message is received at the area control module;

said area control module communicating said message to the network support server; and

said network support server analyzing said message, and communicating the status information contained therein to the one or more display and control units for review by an end user.

Claim 16 was rejected based on a combination of Sugaya, Larsson, and U.S. Patent No. 6,339,745 (Novik). As described in detail above with reference to claim 1, Applicants respectfully submit that the combination of the Sugaya and Larsson references is improper. Furthermore, Applicants also submit that there is no suggestion or motivation for combining the teachings of Novik with those of Sugaya and Larsson.

As the Examiner recognized, Novik generally describes the communication of information about and from multiple vehicles to a central computer system. However, the described method and system is specifically designed for vehicle tracking, and all communications are between a central location (i.e., a "home base") and the individual vehicles. In other words, there is a defined master-slave relationship similar to the Bluetooth protocol discussed above, and there are no communications between vehicles. Thus, there is no need for the repeating and retransmission of messages, nor is there any need for an updating protocol,

because the designated paths for data transmission between the individual trucks and the home base are defined. Therefore, there is no suggestion or motivation for combining the teachings of Novik with those of Sugaya and/or Larsson. Rather, the only teaching or suggestion that supports the combination of these references is found in the teachings of the present application. Therefore, Applicants respectfully submit that the combination is improper and that the initial rejection of claim 16 should be withdrawn.

Furthermore, the combined references do not teach all of the limitations of claim 16. As the Examiner recognized throughout the Office Action, Sugaya does not teach or suggest that the neighboring/receiving transceiver modules make a determination of whether to re-transmit a received message with "re-transmission of the message continuing along said designated path until the message is received at the area control module." As discussed above, Larsson also fails to teach this claim limitation. Specifically, in Larsson, re-transmission occurs when the receiving node is not on the designated path. This is readily contrasted to the language of claim 16 which clearly recites that re-transmission of the message continues only along the designated path.

It is also important to recognize that, the "request message" taught by Larsson is not equivalent to the message defined in claim 16 that contains "the identification of and status of the working component." Furthermore, Larsson is specifically designed for a Bluetooth network in which each transceiver does not communicate with each of its neighboring transceiver as contemplated by claim 16. Lastly, Novik does not include any teachings that would fill in these gaps. In short, similar to the argument presented above with respect to claim 1, regardless of the propriety of combining the Sugaya, Larsson, and Novik references, the initial rejection of claim

16 is still improper and should be withdrawn.

Claims 16-29 depend from claim 15 and are each believed to be allowable in view of the argument presented above with respect to claim 15. Furthermore, some of these dependent claims include additional limitations that distinguish them over the cited prior art references irrespective of the disposition of claim 15, as set forth below.

Claim 19 depends from claim 18 (and indirectly, claim 16) and includes the limitation that each transceiver module include at least one actuation component for manipulating the operation of the working component. In rejecting this claim as being obvious, the Examiner cited not only the Sugaya, Larsson, and Novik references, but also the Eichstaedt reference. However, as set forth in the argument presented above with respect to claim 4, there does not appear to be any suggestion or motivation for combining the teachings of Eichstaedt with that of the other references. Absent such a suggestion or motivation, Applicants respectfully submit that the combination is improper and that the initial rejection of claim 19 should be withdrawn.

Claim 20 depends from claim 16 and includes the limitation that each transceiver module includes one or more sensors for sensing various operational parameters of the status of each working component and communicating that information to the microcontroller for subsequent transmission. In rejecting this claim as being obvious, the Examiner also relied on a combination of the Sugaya, Larsson, Novik, and Eichstaedt references, along with the Belvin reference. However, as set forth in the argument presented above with respect to claim 5, there does not appear to be any suggestion or motivation for combining the teachings of Eichstaedt and/or Belvin with that of the other references. Absent such a suggestion or motivation, Applicants respectfully submit that the combination is improper and that the initial rejection of claim 20

should be withdrawn.

Furthermore, regardless of the propriety of combining these references, there is one key limitation that is neither taught nor suggested by any of the cited references. Similar to claim 5, claim 20 specifically requires "subsequent transmission" of the status information collected by the sensors. In Eichstaedt, the sensor is part of the wearable computing device that receives communications from mobile telephones, pagers, etc. All communications are uni-directional from the mobile telephones, pagers, etc. to the wearable computing device, and therefore, there is no transmission of the status information collected by the sensors. Accordingly, the combination of the Sugaya, Larsson, Novik, Eichstaedt, and Belvin references still fails to teach all of the limitations of claim 20, and the rejection should therefore be withdrawn on these grounds as well.

Claim 27 depends from claim 25 (and indirectly, claim 16) and includes the limitation that information and data associated with the maintenance and operation of the transceiver module is stored in an associated memory. As the Examiner states in the initial Office Action, "Sugaya as modified by Larsson and Novik teaches that data required for communication control of the wireless transceiver is temporality [sic] stored in the internal memory." However, as set forth in the argument presented above with respect to claim 12, Sugaya teaches only the temporary storage of information and data related to the actual communications protocol, while the system recited in claim 27 contemplates storage of information and data related to the working component itself. Accordingly, the combination of the Sugaya, Larsson, and Novik references fails to teach the invention as recited in claim 12, and the rejection should therefore be withdrawn.

Claim 29 depends from claim 16 and includes the limitation that the radio transceivers associated with each transceiver module operate at power levels of no more than 500 mW. In rejecting this claim as being obvious, the Examiner cited not only the Sugaya, Larsson, and Novik references, but also the Gatherer reference. However, as set forth in the argument presented above with respect to claim 14, in a Bluetooth network, there is a single master which may have connections with up to seven slaves, forming a "piconet." All communications are strictly bi-directional between the master and a selected slave, and therefore, there is no need for the repeating and retransmission of messages, nor is there any need for an updating protocol, because the designated paths between the slaves and the master for data transmission are defined. Therefore, there is no suggestion or motivation for combining the teachings of Gatherer with the other references. Therefore, Applicants respectfully submit that the combination is improper and that the initial rejection of claim 29 should also be withdrawn.

**CLAIMS 30-33**

Claim 30 is directed to a communications network and recites as follows:

> 30. (original) A communications network for the monitoring and control of a plurality of independent working components, comprising:
>
> a plurality of transceiver modules, each such transceiver module being secured and operably connected to one of said working components, each such transceiver module including at least a microcontroller for controlling operation and function of the transceiver module, and a radio transceiver;
>
> at least one area control module positioned in the vicinity of the plurality of transceiver modules, said area control module including at least a microprocessor and a radio transceiver;
>
> a network support server in communication with said area control module; and
>
> one or more display and control units in communication with said network support server;
>
> wherein a diagnostics message from one of said transceiver

modules containing status information associated with the working component to which said one transceiver module is secured is (a) transmitted through the radio transceiver associated with the transceiver module, (b) received by one or more neighboring transceiver modules, (c) selectively re-transmitted by receiving transceiver modules until received by the area control module, and (d) communicated to the network support server by the area control module; said network support server analyzing said message, and communicating the status information contained therein to the one or more display and control units for review by an end user.

Claim 30 was rejected based on a combination of Sugaya, Larsson, and Novik. As described in detail above with reference to claim 1, Applicants respectfully submit that the combination of the Sugaya and Larsson references is improper. Furthermore, Applicants also submit that there is no suggestion or motivation for combining the teachings of Novik with those of Sugaya and Larsson.

As discussed in the argument presented above with respect to claim 16, Novik generally describes the communication of information about and from multiple vehicles to a central computer system. However, the described method and system is specifically designed for vehicle tracking and all communications are between a central location (i.e., a "home base") and the individual vehicles. Thus, there is no need for the repeating and retransmission of messages, nor is there any need for an updating protocol, because the designated paths for data transmission between the individual trucks and the home base are defined. Therefore, there is no suggestion or motivation for combining the teachings of Novik with those of Sugaya and/or Larsson, and Applicants respectfully submit that the initial rejection of claim 30 should be withdrawn.

Furthermore, the combined references do not teach all of the limitations of claim 30. As the Examiner recognized throughout the Office Action, Sugaya does not teach or suggest that the neighboring/receiving transceiver modules make a determination of whether to re-transmit a

received message. As discussed above, Larsson also fails to teach this claim limitation. Specifically, in Larsson, re-transmission occurs when the receiving node is not on the designated path. This is readily contrasted to the language of claim 30 which clearly recites that re-transmission of the message continues only along the designated path.

It is also important to recognize that, the "request message" taught by Larsson is not equivalent to the diagnostics message defined in claim 30 that contains "the identification of and status of the working component." Furthermore, Larsson is specifically designed for a Bluetooth network in which each transceiver does not communicate with each of its neighboring transceiver as contemplated by claim 30. In short, similar to the arguments presented above with respect to claims 1 and 16, regardless of the propriety of combining the Sugaya, Larsson, and Novik references, the initial rejection of claim 30 is still improper and should be withdrawn.

Claims 31-33 depend from claim 30 and are each believed to be allowable in view of the argument present above with respect to claim 30.

**CLAIMS 34-35**

Claim 34 is a method claim that was rejected on the same grounds as claim 1 and recites as follows:

> 34. (original) A method for communicating information related to a plurality of working components from each such working component to a network access point, comprising the steps of:
>
> attaching and operably connecting a transceiver module to each working component, said transceiver module including at least a microcontroller for controlling operation and function of the transceiver module, and a radio transceiver;
>
> wherein, upon occurrence of a predetermined event, the microcontroller associated with one of said transceiver modules initiating transmission of a message through the radio

transceiver, said message containing the identification of and the status of the working component;

the message being received by the radio transceivers associated with one or more neighboring transceiver modules;

each of said neighboring transceiver modules making a decision as to whether to re-transmit said message based on a determination of whether the transceiver module is on a designated path between the transceiver module from which the message originated and the network access point;

re-transmission of the message continuing along said designated path until the message is received at the network access point.

As described in detail above, Applicants respectfully submit that the combination of the Sugaya and Larsson references is improper.

Furthermore, similar to the argument presented above with respect to claim 1, Sugaya does not teach or suggest that the neighboring/receiving transceiver modules make "a decision as to whether to re-transmit said message." Specifically, since Sugaya is concerned only with short-distance transmissions, there is no need for the repeating and retransmission of messages. As discussed above, Larsson also fails to teach this claim limitation. Specifically, in Larsson, re-transmission occurs when the receiving node is not on the designated path. This is readily contrasted to the language of claim 34 which clearly recites that re-transmission of the message continues only along the designated path.

It is also important to recognize that the "request message" taught by Larsson is not equivalent to the message defined in claim 34 that contains "the identification of and status of the working component." Furthermore, Larsson is specifically designed for a Bluetooth network in which each transceiver does not communicate with each of its neighboring transceiver as contemplated by claim 34.

For these reasons, Sugaya and Larsson, in combination, can not be said to teach all of the

claim limitations of claim 34, and therefore, the initial rejection of claim 34 is improper and should be withdrawn.

Claim 35 depends from claim 34 and is believed to be allowable in view of the argument present above with respect to claim 34.

**CLAIM 36**

Claim 36 is essentially claim 14 re-written into independent form and thus was initially rejected on the same grounds as claim 14. Specifically, in rejecting this claim as being obvious, the Examiner cited not only the Sugaya and Larsson references, but also the Gatherer reference. As discussed in the argument presented above with respect to claim 14, although Gatherer does correctly note that Bluetooth transceivers commonly operate at maximum power levels no more than 100 mW, in a Bluetooth network, there is a single master which may have connections with up to seven slaves, forming a "piconet." All communications are strictly bi-directional between the master and a selected slave. See, generally, paragraph [0004]. In such a network, there is no need for the repeating and retransmission of messages, nor is there any need for an updating protocol, because the designated paths between the slaves and the master for data transmission are defined. Therefore, there is no suggestion or motivation for combining the teachings of Gatherer with those of Sugaya and/or Larsson. Therefore, Applicants respectfully submit that the combination is improper and that the initial rejection of claim 36 should be withdrawn.

**CLAIM 37**

Claim 37 is similar to claim 13, but specifically limits the operation of the radio

transceivers to defined frequency bands. As described in detail above with reference to claim 1, Applicants respectfully submit that the combination of the Sugaya and Larsson references is improper and that the initial rejection of claim 37 should be withdrawn.

CONCLUSION

Applicants appreciate the Examiner's thorough review and consideration of the pending claims, but believes that most of the initial rejections were based on an improper hindsight reconstruction in which the present patent application was used as "a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit.'" Orthopedic Equip. Co., 702 F.2d at 1012, 217 USPQ at 199. Applicant hopes that the above remarks will assist the Examiner in better understanding the technologies described in the cited prior art references, and perhaps more importantly, the important distinctions between the references that make combining these references inappropriate. Furthermore, Applicant hopes that the above remarks will provide the Examiner with a better understanding of the claimed invention of the present application.

Therefore, in light of the above amendments and remarks, Applicants respectfully request allowance of all claims now pending in the present application.

Respectfully submitted,

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